



INSIDER

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Symposium Honors Gschneidner's Service

"Mr. Rare Earth" celebrates 53 years of service and 75th birthday

Scientific excellence. Exemplary researcher. Prolific writer. Significant contributor. Colleague, mentor and friend. Wonderful human being! These were just some of the phrases used by speakers and colleagues to describe Ames Laboratory senior metallurgist Karl Gschneidner, Jr. during a symposium bearing his name. The event, held Nov. 14, honored Gschneidner's 53 years of service to the rare earth, materials, and physics communities, and celebrated his 75th birthday.

Entitled "Materials and Physics: Life on Earth With and Without the Rare Earths," the symposium brought some of the top researchers from around the world to share their expertise. Sponsored jointly by Ames Laboratory and the Iowa State University department of materials science and engineering, the event is also one of several activities planned to observe 100 years of ceramics/materials science and engineering at Iowa State.

Ames Lab senior scientist Vitalij Pecharsky, who helped organize the symposium, kicked off the event with a short tribute to his close colleague.

"It's been my privilege to know Karl for the last 16 years,"

Pecharsky said. "He is one of the finest human beings I have ever known in my life, and it's been a pleasure organizing this symposium. It's a fitting way to recognize what Karl has done, not only for this community, but for scientists throughout this country and around the world."

Engineering Dean Mark Kushner thanked Gschneidner for his dedication to excellence throughout his career and cited his achievement of having published more than 500 papers during that time.

"To put that in context, 500 papers over 50 years works out to about one per month," Kushner said. "Now any of us can publish papers, but if you read Karl's work, you know the effort that goes into each and every paper, which makes it a truly remarkable achievement."

"It's that kind of academic and scientific excellence that brings people from all over the country to Iowa State," Kushner said. "We don't have the natural attractions or climate like Stanford ... people come here to work with people like Karl."

Ames Lab Director Tom Barton shared a letter from DOE Office of Science Director Ray Orbach, who congratulated Gschneidner on his 53 years of "prolific and dedicated service



Brian Gleeson, left, and Tom Barton, right, present Karl Gschneidner a plaque honoring him for 53 years of service. The plaque has glass vials containing Er_3Ni and $Gd_5Si_2Ge_2$ and a metal ring machined from the ductile intermetallic material YAG.



to the rare earth community."

"As a researcher in this field, I have learned from your papers and profited from your advice," Orbach wrote. "This (sympo-

sium) is a most fitting way to acknowledge someone whose expertise is so recognized and respected that the scientific community *continued on page 2*

Symposium honors Gschneidner's service *continued from page 1*

regards you as 'Mr. Rare Earth.' ”

Adding his own congratulations, Barton said, “I'd like to say happy birthday and a very sincere thank you for the tremendous contributions that you have made to the scientific, international reputation of the Ames Laboratory. You've certainly earned the nickname, but I think we ought to at least promote you to 'Dr. Rare Earth.' ”

“On a personal note Karl, your infectious enthusiasm for, and your obvious, genuine enjoyment of, your science has always served

as a constant reminder to me that great science is great fun,” Barton added.

After joining Barton in presenting a plaque to Gschneidner, Materials and Engineering Physics program director Brian Gleeson offered his thanks.

“Karl's certainly had an illustrious career, but he's also a team player,” Gleeson said. “He's always right there and is a real cornerstone of our Lab ... thanks and congratulations!”

Materials science and engineer-

ing chair Mufit Akinc, who also helped organize the symposium, reflected on Gschneidner's role as a mentor and colleague.

“I first met Karl in 1974 when I was a fresh graduate student from Turkey ... 6,000 miles from home and didn't know what I was doing,” Akinc said. “It was a departmental picnic and Karl approached me, introduced himself, and asked how I was doing and if I needed anything.

“In my broken English, I tried to explain how difficult and frustrating the situation was,” Akinc said, “and Karl's response was, ‘Things will work out, don't worry, you'll be fine,’ and that meant so much to me.”

He pointed to other occasions as a new faculty member or grant recipient when Gschneidner offered encouragement, support or congratulations, and later served as a sounding board on both research and career decisions.

“It means so much to young scientists trying to make it through the system to have that kind of support and encouragement,” Akinc said. “I've learned a lot from him, and he's been a fantastic contributor to the department over the years.”

Among the symposium's nine scientific presentations were three given by international researchers from as far away as Moscow; Lausanne, Switzerland; and Dresden, Germany. Also speaking were Ames Lab Deputy Director Bruce Harmon, chemistry professor and associate scientist Gordon Miller, and Carl Zimm, researcher with Astronautic Corporation of America. Astronautics teamed with Gschneidner's group in developing the first room-temperature rotary magnetic refrigerator.

Reflecting on his symposium, Gschneidner thanked the organizers and the presenters.

“The quality of the presentations was so outstanding, I actually stayed awake through all of them,” he said with a characteristic twinkle in his eye.

Happy Birthday, Karl, from all of us! ■

~ Kerry Gibson



Prior to the opening of a symposium held in honor of his 53 years of service to science and his 75th birthday, Karl Gschneidner chats with an attendee.

Tour de Karl?

In honor of his dedication to cycling to work, Gschneidner received an award at Monday evening's dinner/roast. While the award credited him for circling the globe five times (125,000 miles) Gschneidner pegs his actual mileage at closer to 60,000 — about 2,000 per year for the past 30 years.





MEP Program Review Showcases Basic Research Efforts

"Our overarching goal is to do world-class research," said Brian Gleeson, in his overview of the Materials and Engineering Physics program that kicked off the MEP program review, Nov. 7-8. Gleeson, MEP program director, emphasized the importance of the coming together of researchers, both within and outside of the program, that results in a highly integrated, creative and effective approach to problem-solving – an approach that unites experimental and theoretical efforts to advance basic understanding of materials.

During his talk, Gleeson paid special tribute to the Materials Preparation Center, calling it "a key strength that enables the research we do." For 24 years, the MPC has provided materials of the highest purity, and with specified form and microstructure, to scientists around the world. The reviewers were given a tour of the MPC to meet and visit with the talented people who prepare, purify, fabricate and characterize the materials that facilitate research in a countless variety of scientific disciplines throughout the world.

A few short days after the program review concluded, a pleased Gleeson reflected on its outcome. "The preparation for a program review is

no small undertaking," he said, "and, in the end, I think the researchers clearly succeeded in showcasing the excellent basic research being conducted in the Materials and Engineering Physics program. The presentations and poster sessions were well received by the reviewers and the DOE-BES management. In addition, there was no uncertainty left to the reviewers that the MPC is an essential and key strength of the MEP program and the Lab in general." ■



During the poster session at the MEP Program Review, postdoctoral research associate Liming discusses his solidification research with Professor Merton Flemings, Toyota Professor Emeritus of Materials Processing at MIT.



Cheers!

Leaving their lab coats behind, Dan Sordelet (left) and Brian Gleeson find formal attire more appropriate for the R&D 100 Awards Banquet held at Chicago's Navy Pier in October. The two researchers received a 2005 R&D 100 Award for their development of novel platinum-modified nickel-aluminide bond coats for thermal barrier coatings. The new bond coats promise to significantly improve the reliability and durability of gas turbine engines, allowing them to operate at higher temperatures and extending their lifetimes.

Rosenberg on Baseball

Although he was competing with the third game of the World Series, Eli Rosenberg, chair of the Iowa State University physics and astronomy department, drew a respectable crowd for his PowerPoint talk on the physics of baseball, Oct. 25 at the Ames Public Library. The talk was the latest in a series on yearlong activities coordinated by Ames Lab's Public Affairs office to help celebrate the 2005 World Year of Physics.

Rosenberg presented many in-

teresting facts about the aerodynamic forces at work in baseball, among them the drag force, or air resistance, that allows a pitcher to

throw curves, sliders or knuckle balls. For example, a curve ball is created when a ball is spinning. The faster-flowing air under the ball creates less pressure, which causes the ball to break. But Rosenberg cautions, "Perception plays a big role in how that curve looks to the pitcher and the batter." The typical curve ball deviates only 3.4 inches from a straight line drawn between the pitcher's hand and the catcher's glove. However, from the perspective of the pitcher and the batter, the ball moves 14.4 inches. ■



Eli Rosenberg

DOE Seeks Contractor to Operate Ames Laboratory

On Nov. 14, DOE announced the contract for the management and operation of the Ames Laboratory will be open for competition. Congress mandated that the DOE re-bid the contracts on all labs that have not had a new contractor for more than 50 years. Since ISU has been the Lab's only contractor since 1947, Ames Laboratory is among those labs affected.

The solicitation asks for bidders to submit an expression of interest to bid on the contract by Dec. 2, 2005. Any new contractor would assume

management and operation of Ames Laboratory on Jan. 1, 2007.

Iowa State University has already announced its intent to bid on the Ames Laboratory contract. On WOI-Radio's "Talk of Iowa" program, Oct. 6, ISU President Gregory Geoffroy said, "We (ISU) believe we are the best bidder for the contract," pointing to the close integration that exists between the Lab and ISU. He added, "We will go through the process and hope to manage the Ames Laboratory for decades."

A "Haunting" We Will Go

TASF employees suit up for Halloween

Strange folks were in our building;
Odd beings on every floor.
Who knew what might be lurking
Behind each office door?
A Witch, a Nerd, and a Giant Carrot,
Plus an "Ila" clone you could only
stare at.
The Ketchup, Mustard and Miracle
Whip made quite an awesome sight,
As did the daring Robin Hood with
Maid Marian by his side.
These and other characters haunted
every TASF scene.
They used to be our co-workers 'til
they dressed for Halloween!



The two Ilas, (real and cloned) share a festive moment as they review new budget directives.

TASF employees, many in costume, showed up to enjoy a Halloween potluck at the Spedding Hall auditorium on Oct. 31. Although there were many fabulous and innovative costumes, the one that had everyone in stitches was that worn by personnel officer Diane Muncrief. She had come dressed as Ila Haugen, the Lab's budget officer. The real Ila admits she laughed until she cried when Muncrief walked into her office on Halloween morning. "What made it even better was that I was wearing the same outfit that Diane

had on and I didn't even know she was going to do this," explains the good-natured Haugen.

As it turned out, Muncrief's charade did what a good costume is supposed to do on Halloween – put the scare into unsuspecting souls. In fact, it's just possible that the two Ilas had entirely too

much fun shocking people who were terrified that the real Ila had, indeed, cloned herself to better oversee the budget activities of various groups. After all, as we know, almost anything can happen on Halloween! ■

~ Saren Johnston



Carol Cowan, secretary, doesn't give a hoot about how many Ilas show up on Halloween as long as they don't leave their dirty laundry with her.



Meagron and Chris Strasburg seem to find budget analyst Lora Larrance's obvious concern about a second Ila quite amusing. It would seem a heartless response, but perhaps they're under the jolly spell of Robin Hood's merry men.



As a giant carrot, Deb Covey is relatively free from the Ilas unless they start craving carrot cake!



Two budget officers! This is one more Ila than a Lab director can take!



Human Resources staff Ketchup (Rhonda Deshong), Miracle Whip (Lynnette Witt) and Mustard (Rhonda Hill) may know more about how the Ila clone arrived at the Lab. If so, they're not telling.



Oblivious to her boss' two-Ila dilemma, Cynthia Feller shows off her gorgeous new socks.

(right) The nerd (Norma Sandvick), the witch (Sheila Tellinghuisen) and the ball player (Jean Boot) – this is our accounting office, folks – better not let the Ilas see them like this!



Mark Murphy, division director of Technical and Administrative Services, is too busy forecasting the weather – partly cloudy with a chance of rain (from his squirt bottle) – to worry about an extra Ila.



(right) Sally Evans, the well-dressed witch, finds all the excitement about the two Ilas misplaced. Shouldn't it be directed at the very latest in witch fashions?

(left) In her little girl costume, Vickie Hahn is a real cutie, but cuteness will not deter the Ilas from noting that her lollipop is not an allowed expense.



Entrepreneurial Spirit Continues at IPRT

IPRT's tradition of fostering entrepreneurs continues.

Joe Hynek, a doctoral student in mechanical engineering at Iowa State University who has also done research at IPRT's Virtual Reality Applications Center, is working to make solar-cell technology wearable and capable of keeping cell phones and handheld computers charged and ready.

Hynek's work is part of a \$22,500 IPRT grant to Mark Bryden, an associate professor and associate chairman of Iowa State's department of mechanical engineering. The grant will allow the project's collaborators – Hynek, Bryden, J.R. Campbell, an Iowa State associate professor of textiles and clothing – to develop the technology and the intellectual property that could lead to a new Iowa company.



Hynek already has an award-winning design for a potential product: a "Power Purse" covered with solar cells that really do recharge batteries. His idea for the handbag

A model demonstrates a solar powered purse that can be used to recharge items such as cell phones and iPods. The purse was designed by Joe Hynek, a graduate student in mechanical engineering, with funding from IPRT. "A large problem with putting technology in clothing is that it looks dorky," explains Hynek. "My goal is to use solar cells in a way that's unobtrusive to fashion while making something that's useful."

began with a job at Iowa Thin Film Technologies, an established company that makes thin, flexible solar cells. (ITFT was another entrepreneurial endeavor that sprang from IPRT and the Ames Laboratory).

News of Hynek's solar-powered clothing has reached far and wide. It has been featured in *discovery.com*, *BusinessWeek* online, *USA Today*, the *Associated Press* and the *Des Moines Register*, according to Mike Krapfl of ISU's University Relations.

Hynek reports that things are going well. "I've been testing and tweaking my circuits to ensure that my batteries charge properly and provide power to my cell phone and iPod efficiently and quickly," he says. He's also working with ISU Pappajohn Center for Entrepreneurship to discuss potential business strategies for solar wearables consulting, manufacturing and continued research. Hynek is also actively seeking distributors for the Power Purse.

Kurzweil to Keynote VRAC Forum

The Virtual Reality Applications Center has announced that Ray Kurzweil will be the keynote speaker for its spring event "HCI Forum: Designing Interaction 2006." His talk, "When Humans Transcend Biology," is at 10 a.m., April 12, 2006 in the Lee Liu/Alliant Energy Auditorium in Howe Hall.

Kurzweil founded and developed nine businesses in OCR, music synthesis, speech recognition, reading technology, virtual reality, financial investment, cybernetic art, and other areas of artificial intelligence. His Web site, KurzweilAI.net, is a leading resource on artificial intelligence. Kurzweil was inducted in 2002 into the National Inventors Hall of Fame. He has also received the \$500,000 Lemelson-MIT Price, the nation's largest award in invention and innovation. He has written several successful books, the latest of which is "Singularity."

IPRT's in the Show

IPRT made its presence known at several conferences and events this fall:

Biobased Industry Outlook Conference, held August 29 -30 at Scheman Auditorium. IPRT's Center for Catalysis, Center for Sustainable Environmental Technologies and IPRT Company Assistance all took part in this event, which highlighted new technology developments, capitalization strategies and partnerships between researchers and the business community. Researchers from CCAT, CSET and Ames Laboratory also participated in the event's Research Posters session. Over 400 people attended the conference. Featured speakers included Iowa State University President Gregory Geoffrey, Iowa Governor Thomas Vilsak and Iowa Congressman Tom Latham.

Iowa Venture Capital & Entrepreneur Conference, held September 15 in the new Iowa Events Center in Des Moines. During the conference, Carey Novak, an IPRT technology transfer associate, spoke on "Financial Resources to Assist Iowa Entrepreneurs on Early-stage Product Development." Novak covered the dynamics of early stage product development, the IPRT cost-sharing program and Small Business Innovation Research grants. As part of the presentation, Atul Kelkar of Vibroacoustics Solutions Inc. and Mike Lally of Envirotech spoke about their experiences with IPRT. Novak and Lynne Mumm, another IPRT technology transfer associate, represented IPRT at its booth, which featured VSI and Proplanner.

Growing Biotechnology in Iowa, held September 21 at Scheman. This is the annual meeting of the Iowa Biotechnology Association. This year's conference included topics such as successful collaboration and accessing university intellectual property. IPRT's Center for Catalysis and IPRT Company Assistance had displays at this event.

Commercializing Creative Endeavors, held October 7 at the University of Northern Iowa. This seminar was attended by UNI faculty. IPRT's Deb Amenson, program coordinator, and Lynne Mumm, technology transfer associate, attended with a display that showed how IPRT works with faculty members.

County Extension Education Directors ISU Industry Assistance "In-service" day, held October

12 at the Memorial Union. At this gathering, over 25 directors learned about ISU's services for business and industry. A panel of IPRT Company Assistance staff, including Deb Amenson, program coordinator; Kim Bentley, technology transfer associate; Paul Berge, metallurgist; and Brian Larson, nondestructive evaluation program director, explained how IPRT works with Iowa companies to solve technical problems and perform contract research. The presentations were accompanied by a display showing examples of IPRT's company assistance projects and a list of Iowa cities and towns in which IPRT has worked with a company or other organization.

IPRT made an impression at the event, according to Craig Hertel, the Greene County Extension Education Director and coordinator of the event. Hertel said the IPRT presentations were "just right." He also passed along results from a post-event survey of attendees, which showed that IPRT's presentations garnered the highest ratings of the day.



IPRT's Industrial Advisory Board held its semi-annual meeting in October. The board heard an update on IPRT research projects as well as from representatives of the Center for Building Energy Research. Board members, from left, include Christopher E. Borroni-Bird, General Motors Co.; James White, Dow Corning Corp.; Jack F. McGuire, Boeing Co.; Robert E. Moulds, Deere and Company; Nan Mattai, Rockwell Collins, Inc.; Jonathan Rich, Goodyear Tire and Rubber Co.; and John A. Harris, Jr., Belcan Corp.

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Holiday Party and Auction is Dec. 7

The Ames Lab/IPRT Holiday Party and Auction will be Wed., Dec. 7, from 2-4 p.m. in the Spedding Hall auditorium.

The Holiday Party will include both a live and silent auction. Proceeds will be donated to Mary Greeley's Israel Family Hospice House, which offers comprehensive end-of-life services in a home-like setting.

Employees should bring items they wish to donate to the Holiday Auction to Public Affairs in 111 TASF. Donations of new mittens, hats and scarves and food-pantry items for Mid-Iowa Community Action may also be brought to Public Affairs and to the Holiday Party on Dec. 7.

To preview items up for bid, check out the Holiday Auction Web site at:
<http://www.iprt.iastate.edu/auction/index.html>



Flu Shots and a Familiar Face

(right) Karen Burk, retired nurse from the Lab's Occupational Medicine department, teams up with Audrey Hohanshelt, nursing supervisor, during the Flu Shot Clinic, Nov. 2-18 in 205 TASF. ISU provided the immunizations at no cost to employees.



Great Job!

As of Oct. 28, Ames Laboratory and IPRT had contributed \$13,234 to the campus United Way Campaign, exceeding their goal of \$10,500 by \$2,734. Congratulations!

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